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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,181	06/30/2003	Timothy Joseph Dalton	BUR920030030US1	1180

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EXAMINER
YOUNG, CHRISTOPHER G

ART UNIT	PAPER NUMBER
1756	

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/604,181

Applicant(s)

DALTON ET AL.

Examiner

Christopher G. Young

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 5-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 15-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2 sheets.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Applicant's election without traverse of the species set forth in claim 4 in the reply filed on March 16, 2005 is acknowledged.

2. Applicants assert that the election includes claims 1, 4-6, 8, 9, 11, 13 and 15-20. The Examiner disagrees with this assertion. It is apparent that claims 1-4 and 15-22 are drawn to the elected species. Claims 4-14 stand withdrawn as being part of the non-elected species.

### ***Information Disclosure Statement***

3. The two information disclosure statements (IDS) have been considered by the examiner. The reference crossed out by the Examiner appears to be a typo of the reference number on the form since it has nothing to do with the scope of the instant application.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

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1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/605,801. Although the conflicting claims are not identical, they are not patentably distinct from each other because the requirement of a resist layer in the instant application is inherent in the claim of the co-pending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Claim Rejections - 35 USC § 102/103***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-4 and 15-22 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Brooks et al. (US Patent Application Publication US 2005/0008945).

The instant application claims are drawn to a method for manufacturing a photomask through forming an opaque layer on a substrate, forming a resist layer on the opaque layer, and etching the opaque layer by using a gas mixture having a selectivity approximately equal to or higher than 1.2:1 between the opaque layer and the resist layer.

Brooks et al. show a multi-step process for etching photomasks. The claims of the reference set forth the basics of the disclosed process. Refer particularly to claims 1, 6 and 7. The specification teaches that Generally a photolithographic reticle includes an opaque layer known as a photomask, deposited on an optically transparent substrate material. The opaque layer may comprise a metal layer, for example, chromium, or another material known or unknown in the art suitable for use as a photomask, such as amorphous carbon. An optically transparent material of the substrate is broadly defined to include, but not limited to, a material transparent to lights having wavelengths of

about 300 nm or less, for example, transparent to ultraviolet light having wavelengths of 248 nm and 193 nm.

An anti-reflective coating (ARC or ARC layer) may be formed on or comprise part of the deposited metal layer. The ARC layer is believed to improve photolithographic precision in patterning features to be formed in the opaque layer. The ARC layer may be a metal layer incorporating nonmetallic contaminants or impurities to form, for example a metal oxynitride layer, such as chromium oxynitride. Chromium oxynitride may be formed during deposition of the metal layer or by exposing the metal layer to a suitable atmosphere. The metal oxynitride layer may comprise up to the top 30% of the total thickness of the metal layer or up to the top 30% of the combined metal layer and ARC material. This shows claims 15-18 of the instant application.

Claim 19 is shown in the passage reciting that the resist material may be patterned optically, i.e., photoresist materials, using a laser patterning device or by another radiative energy patterning device, such as an electron beam emitter to form a first opening 325 that is used to define the dimensions of the second opening 335 to be formed in the ARC layer 370 and the metal layer 320.

The ratio of gases is shown in the passage at paragraph 66. The processing gas for etching the metal photomask layer includes oxygen gas, chlorine gas, and an inert gas. The processing gas may be introduced into the processing chamber at a flow rate between about 150 sccm and about 350 sccm during the etching process. Oxygen gas is introduced into the processing chamber at a flow rate between about 25 sccm and about 100 sccm. Chlorine gas is introduced into the processing chamber at a flow rate

between about 200 sccm and about 270 sccm. The inert gas, for example, helium, is introduced into the processing chamber at a flow rate between about 25 sccm and about 70 sccm. The ratio of chlorine gas to oxygen gas in the processing gas is between about 2.7:1 and about 8:1.

Since the same ingredients are being used to etch the same photomask blank as claimed, the etch selectivity ratio is an inherent feature. Based on this, the scope of protection sought is anticipated. In a case such as this where it is not clear what, if any, difference exists between the prior art and the instant application a combination rejection under 35 USC 102/103 is proper.

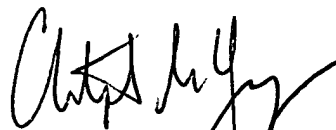
### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher G. Young whose telephone number is 571-272-1394. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christopher G. Young  
Primary Examiner  
Art Unit 1756

cgy